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Filed : October 4, 1999

## SUMMARY OF THE INTERVIEW

### Identification of Claims Discussed

Claim 1

### Identification of Prior Art Discussed

U.S. Patent No. 5,999,630 to Iwamatsu (the "Iwamatsu patent")

U.S. Patent No. 4,739,514 to Short, et al. (the "Short patent").

"Squeeze Me, Stretch Me: The DC 24 User's Guide" by Davies et al. ("the Davies publication").

### Proposed Amendments

Applicant proposed amending Claim 1 to clarify that the bass enhancement module multiplies the amplitude of a higher-frequency signal with a lower-frequency signal to produce a signal envelope where the higher-frequency signal is modulated by the lower-frequency signal.

### Principal Arguments and Other Matters

An embodiment of Applicant's invention is directed to a system that comprises an image correction module, a bass enhancement module and an image enhancement module. In particular, the bass enhancement module multiplies the amplitude of a higher-frequency signal with a lower-frequency signal to produce a signal envelope where the higher-frequency signal is modulated by the lower-frequency signal.

Applicant agrees with the Examiner that the Iwamatsu patent does not disclose the claimed base enhancement module. Applicant, however, disagrees that the Short patent describes a base compressor that modulates the amplitude of a higher-frequency signal with a lower-frequency signal to enhance the perception of lower-frequency sounds to a listener.

The Short patent appears to describe a system where a 2:1 compressor is added to an original signal to improve automatic loudness compensation. The original signal is not multiplied with the output of the 2:1 compressor. Thus, the Short patent does not appear to describe the bass enhancement module that multiplies the

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amplitude of a higher-frequency signal with a lower-frequency signal to produce a signal envelope where the higher-frequency signal is modulated by the lower-frequency signal.

Results of Interview

It was Applicant's understanding that the Examiner agreed that the cited references failed to teach Applicant's claimed inventions. It was also Applicant's understanding that the Examiner would conduct an additional search.

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### **REMARKS**

The April 29, 2005 Office Action was based upon pending Claims 1-4 and 6-36. This response amends Claims 1, 6, 11, 13, 20, 27 and 34-36. Thus, after entry of this response, Claims 1-4 and 6-36 are pending and presented for further consideration.

#### **Claim Rejections**

In the April 29, 2005 Office Action, the Examiner rejected Claims 1-4, 6-12, 16-26 and 30-36 under 35 U.S.C. §112, first paragraph.

The Examiner also rejected Claims 1-4, 6-13, 16-27 and 30-36 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,999,630 to Iwamatsu (the "Iwamatsu patent"), in view of U.S. Patent No. 4,739,514 to Short, et al. (the "Short patent").

In addition, the Examiner rejected Claims 14, 15, 28 and 29 under 35 U.S.C. §103(a) as being unpatentable over the Iwamatsu patent in view of the Short patent and further in view of a publication entitled "Squeeze Me, Stretch Me: The DC 24 User's Guide" by Davies et al. (the Davies publication").

#### **Examiner Interview**

Applicant would like to thank Examiner Jacobson for the interview extended to Applicant's counsel of record, John R. King, on June 3, 2005. As set forth above, during the interview, it is Applicant's understanding that the Examiner agreed that the amendments to Claim 1 clarified the patentably distinguishing features of the invention. Accordingly, Applicant has amended Claims 6, 11, 13, 20, 27 and 34-36 along the lines discussed in the interview.

Reconsideration of the pending claims, as amended, is therefore respectfully requested.

#### **Rejection of Claims 1-4, 6-12, 16-26 and 30-36 under 35 U.S.C. §112, First Paragraph**

In the April 29, 2005 Office Action, the Examiner rejected Claims 1-4, 6-12, 16-26 and 30-36 under 35 U.S.C. §112, first paragraph, because the specification does not provide enablement of other forms of modulating the amplitude of a higher-frequency

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sound signal by a lower-frequency sound signal (e.g., squaring or rectifying and low-pass filtering a composite signal).

While Applicant disagrees with the Examiner's comments, Applicant has amended independent Claims 1, 6, 20 and 34-36 to focus on multiplying the higher-frequency and lower-frequency signals. Applicant therefore respectfully submits that independent Claims 1, 6, 20, and 34-36 comply with 35 U.S.C. §112, first paragraph.

Likewise, Applicant respectfully submits that dependent Claims 2-4, 7-12, 16-19, 21-26 and 30-33 meet 35 U.S.C. §112, first paragraph.

Thus, Applicant respectfully requests allowance of Claims 1-4, 6-12, 16-26 and 30-36.

#### **Rejection of Claims 1-4, 6-13, 16-27 and 30-36 under 35 U.S.C. §103(a)**

The Examiner rejected Claims 1-4, 6-13, 16-27 and 30-36 under 35 U.S.C. §103(a) as being unpatentable over the Iwamatsu patent, in view of the Short patent.

An embodiment of Applicant's invention is directed to a system that comprises an image correction module, a bass enhancement module and an image enhancement module. In particular, the bass enhancement module multiplies the amplitude of a higher-frequency signal with a lower-frequency signal to produce a signal envelope where the higher-frequency signal is modulated by the lower-frequency signal.

Applicant agrees with the Examiner that the Iwamatsu patent does not disclose the claimed base enhancement module. Applicant, however, disagrees that the Short patent describes a base compressor that modulates the amplitude of a higher-frequency signal with a lower-frequency signal to enhance the perception of lower-frequency sounds to a listener.

#### **Claims 1, 6, 20, and 34-36**

Because the references cited by the Examiner do not disclose, teach or suggest a first band pass filter that filters the sound at a first frequency, at least a second band filter that filters the sound at a second frequency, where the second frequency is different than the first frequency, a third band pass filter that filters the sound at a third frequency, where the third frequency is different than the first and second frequencies, a combiner that combines the output of the first, second and third band-pass filters to

generate a combined filtered signal, a compressor that reduces the gain of the at least a portion of the high amplitudes in the combined filtered signal, and a base punch circuit that increases the gain of at least a portion of the low amplitudes in the combined filtered signal, Applicant asserts that independent Claims 1, 6, 20, and 34-36 are not obvious based on the combination of the Iwamatsu patent and the Short patent. Applicant therefore respectfully submits that independent Claims 1, 6, 20, and 34-36 are patentably distinguished over the cited references and Applicant respectfully requests allowance of independent Claims 1, 6, 20, and 34-36.

Claims 2-4

Claims 2-4, which depend from Claim 1, are believed to be patentable for the same reasons articulated above with respect to Claim 1, and because of the additional features recited therein.

Claims 7-13 and 16-19

Claims 7-13 and 16-19, which depend from Claim 6, are believed to be patentable for the same reasons articulated above with respect to Claim 6, and because of the additional features recited therein.

Claims 21-27 and 30-33

Claims 21-27 and 30-33, which depend from Claim 20, are believed to be patentable for the same reasons articulated above with respect to Claim 20, and because of the additional features recited therein.

**Rejection of Claims 14, 15, 28 and 29 under 35 U.S.C. §103(a)**

The Examiner rejected Claims 14, 15, 28 and 29 under 35 U.S.C. §103(a) as being unpatentable over the Iwamatsu patent in view of the Short patent and further in view of the Davies publication.

The Davies publication, like the Iwanatsu patent and the Short patent does not disclose, teach or suggest a first band pass filter that filters the sound at a first frequency, at least a second band filter that filters the sound at a second frequency, where the second frequency is different than the first frequency, a third band pass filter that filters the sound at a third frequency, where the third frequency is different than the first and second frequencies, a combiner that combines the output of the first, second

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and third band-pass filters to generate a combined filtered signal, a compressor that reduces the gain of the at least a portion of the high amplitudes in the combined filtered signal, and a base punch circuit that increases the gain of at least a portion of the low amplitudes in the combined filtered signal.

Thus, Applicant asserts that Claims 14, 15, 28 and 29 are not obvious based on the combination of the Iwamatsu patent, the Short patent and the Davies publication. Applicant therefore respectfully submits that Claims 14, 15, 28 and 29 are patentably distinguished over the cited references.

In addition, Claims 14 and 15, which depend from Claim 6, are believed to be patentable for the same reasons articulated above with respect to Claim 6, and because of the additional features recited therein.

Also, Claims 28 and 29, which depend from Claim 20, are believed to be patentable for the same reasons articulated above with respect to Claim 20, and because of the additional features recited therein.

### **Drawings**

The Examiner stated that the drawings submitted on June 14, 2004 are acceptable. Thus, Applicants have submitted formal drawings herewith.

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**Conclusion**

Applicants have endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. In light of the above remarks, reconsideration and withdrawal of the outstanding rejections is specifically requested.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 9-28-05

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